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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/532,821	11/08/2005	Markus Rademacher	BOE01 065	8921
7590 Mark C. Comtois Duane Morris 1667 K Street N W Suite 700 Washington, DC 20006			EXAMINER NGUYEN, LINH M	
			ART UNIT	PAPER NUMBER
			2816	
SHORTENED STATUTORY PERIOD OF RESPONSE		MAIL DATE	DELIVERY MODE	
3 MONTHS		12/18/2006	PAPER	

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

**Office Action Summary**

Application No.

10/532,821

Applicant(s)

RADEMACHER, MARKUS

Examiner

Linh M. Nguyen

Art Unit

2816

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 08 November 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1,2,4,6-13 and 15-18 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 6-13 and 15 is/are allowed.
- 6) ☒ Claim(s) 1,4,16 and 18 is/are rejected.
- 7) ☒ Claim(s) 2,17 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 April 2005 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>07/27/05</u> . | 6) <input type="checkbox"/> Other: _____  |

### **DETAILED ACTION**

Claims 1-18 are presented in the instant application according to the Applicants' filing on 11/08/2005.

#### ***Drawings***

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the limitation in claim 1, line 3, "*one storage register and a counter*", must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

***Claim Objections/Minor Informalities***

2. Claims 4 and 18 are objected to because of the following informalities:

Claims 4 and 18, line 2, it is suggested to add -- has -- after "counter".

Appropriate correction is required.

***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

A person shall be entitled to a patent unless –

Claims 1 and 16 are rejected under 35 U.S.C. 102(b) as being anticipated by Chen et al. (U.S. Patent No. 6,005,377).

With respect to claim 1, Chen et al. discloses, in Figs. 1 and 3, a pulse width modulator circuit for generating a reference signal having a desired duty cycle comprising an adjustment unit including at least one storage register [Fig. 3, item 302] and a counter [Fig. 3, item 304], the storage register being configured for storing values corresponding to the desired duty cycle (*lines 55-57*) at least approximately and which are set during a working cycle in the pulse width modulator circuit for generating a reference signal, and the counter setting a cycle count (Y) indicating how often a stored first value (X) is read during the working cycle (A) wherein the first value stored in the storage register is variable upon reaching the cycle count (Y) to store a second value (X+1) which is set for the remainder of the working cycle after the cycle count (Y) is reached.

With respect to claim 16, Chen et al. discloses, in Figs. 1 and 3, a power supply comprising switching means [Fig. 1, item 108], and a pulse width modulator circuit [Fig. 1, item 128] for generating a reference signal having a desired duty cycle (*lines 55-57*) having an adjustment unit including at least one storage register [Fig. 3, item 302] and a counter [Fig. 3, item 304], the storage register being configured for storing values corresponding to the desired duty cycle at least approximately and which are set during a working cycle in the pulse width modulator circuit for generating a reference signal, and the counter setting a cycle count (Y) indicating how often a stored first value (X) is read during the working cycle (A) from the storage register, wherein the first value stored in the storage register is variable upon reaching the cycle count (Y) to store a second value (X+1) which is set for the remainder of the working cycle after the cycle count (Y) is reached, and wherein the pulse width modulator circuit [Fig. 1, item 128] outputs to the switching means [Fig. 1, item 108], a control signal having a desired duty cycle and corresponding to the reference signal.

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 4 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chen et al. (U.S. Patent No. 6,005,377).

With respect to claims 4 and 18, Chen et al. discloses all of the claimed limitations as expressly recited in claims 1 and 16, respectively. Chen et al. fails to explicitly disclose that the

storage register has an 8-bit capacity and the counter has a 3-bit capacity. However, the selection of such capacities for the storage register and for the counter is not of patentable merit since it does neither affect nor create any improper function of the pulse width modulation circuit.

Besides, depending upon a desired application or a particular environment of use, the selection of capacities for the storage register and the counter would have been chosen to ensure an optimal performance of the circuit. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to select a storage register having an 8 bit capacity and a counter having a 3 bit capacity for the pulse width modulation circuit of Chen et al. in order to optimize the overall performance of the pulse width modulation circuit. Furthermore, such a provision of selecting a specific delay range involves only routine design expedient.

***Allowable Subject Matter***

6. Claims 6-13 and 15 are allowed.
7. Claims 2 and 17 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
8. The following is a statement of reasons for the indication of allowable subject matter:  
The closest prior art of record does not show or fairly suggest:
  - a) The pulse width modulator circuit including *an adder* which receives the stored first value from the storage register and changes it upon reaching the cycle count (Y) to generate a second value (X+ 1) which is set for the remainder of the working cycle after the cycle count (Y) is reached, as called for in claims 2 and 17; and

b) A method including a step of setting a cycle count dictating how often the first value and how often the second value is read during the working cycle to set the desired duty cycle as a function of an *average* of the first and second values output during the working cycle, in combination with the remaining claimed limitations, as called for in independent claims 6 and 15.

***Citation of Relevant Prior Art***

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Prior art Alfano et al. (U.S. Pub. No. 2006/0212679) discloses a field programmable mixed-signal integrated circuit with a pulse width modulator.

***Inquiry***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Linh M. Nguyen whose telephone number is (571) 272-1749. The examiner can normally be reached on Alternate Mon, Tuesday - Friday from 7:00 to 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Callahan can be reached on (571) 272-1740. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

LMN



**LINH MY NGUYEN**  
**PRIMARY EXAMINER**